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Cooperative Economic Insect Report

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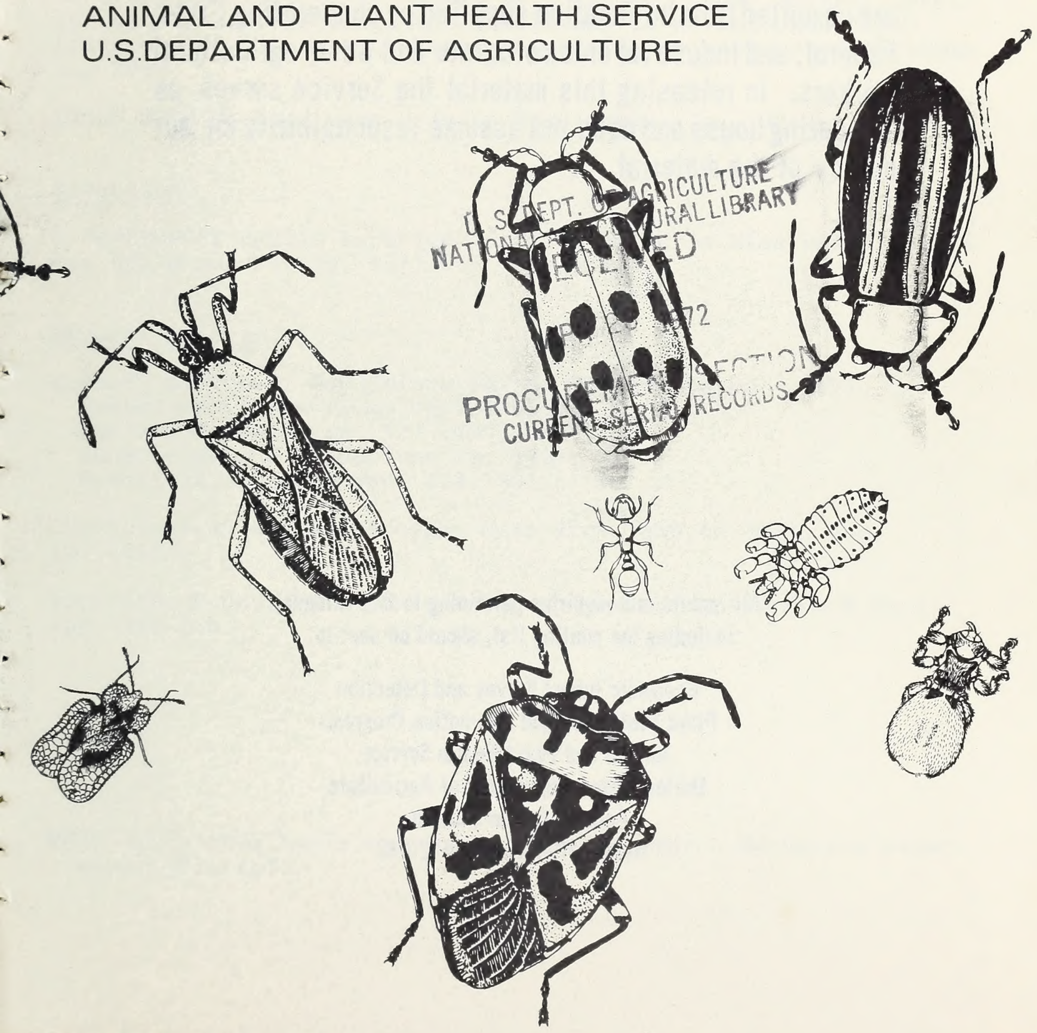

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The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Service serves as a clearing house and does not assume responsibility for accuracy of the material.

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Volume 22 March 31, 1972 Number 13

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

GREENBUG continues heavy on small grains in portions of Oklahoma. Damaged oats in Arkansas. (p. 160).

CHINCH BUG expected to cause some damage to seedling sorghum and corn in Kansas. (p. 160).

ALFALFA WEEVIL still heavy on alfalfa in southern Oklahoma. Controls underway in all areas of Arkansas. Above control levels in west Tennessee. Heavy in alfalfa hay in Nevada. PEA APHID heavy on vetch in Texas. Heavy on alfalfa in portion of Oklahoma. (p. 161).

LYGUS BUGS damaged pear buds in Washington. (p. 162).

Detection

A POWDERPOST BEETLE reported for first time in Mississippi for a new State record. (p. 167).

Special Reports

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  Man and Animals (pp. 174-178).
  Households and Structures (p. 178).
  Beneficial Insects (pp. 178-180).

Chronological Spread of Gypsy Moth from 1869 to 1971. Map. (p. 181).

Important Recent Name Changes Among Earwigs of the Genus Doru. (pp. 182-185).

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WEATHER OF THE WEEK ENDING MARCH 27.

Reprinted from Weekly Weather and Crop Bulletin supplied by Environmental Data Service, NOAA.

PRECIPITATION: Light rain dampened the Pacific Northwest and the Florida Peninsula Monday. Rains also fell over mid-America from the Dakotas and Minnesota to the Gulf of Mexico. Severe local thunderstorms broke out ahead of a cold front in eastern Oklahoma and Eastern Texas. One especially heavy thunderstorm dumped several inches rain at Houston late in the afternoon and early evening. One station in the Houston vicinity reported 24-hour rainfall of 7.47 inches measured Tuesday morning As the front moved eastward, it brought wet, windy weather to much of the East. Numerous thunderstorms and some with hail noted. Winds at Willowick, Ohio, near Cleveland gusted to 70 m.p.h. Light snow fell in Upper Michigan and nearby portions of Wisconsin. As the front moved eastward, rains slackened in the Southeast, but wet, windy weather continued in the Northeast. Six inches of snow fell at Caribou, Maine, Wednesday afternoon. Snow also fell in the Appalachians.Thomas, West Virginia, measured 7 inches of new snow Thursday morning. Hail fell about noon Thursday and snow flurries were seen in the Washington, D.C., metropolitan area in late in the afternoon. A weekend storm dumped heavy snow in portions of the northern Great Plains from Montana to the Great Lakes. Six to 9 inches of snow fell in spots in Montana. Gusty winds piled snow in 2 foot drifts in the foothills in the north-central part of State. Rain and drizzle fell in South Dakota and southern Minnesota with glaze slicking highways some areas. Strong winds kicked up dust and sand in the Southwest Sunday afternoon. Dust storms were especially severe in the deserts. The north-central

Weather of the week continued on page 186.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (*Euxoa auxiliaris*) - COLORADO - Larva 1 per linear foot in *Sedgwick County winter* wheat. (Marquardt).

GREENBUG (*Schizaphis graminum*) - ARIZONA - Ranged 170-410 per 100 sweeps in *3 fields of barley* and wheat at Yuma, Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Ranged 10-30 on wheat in Curry and Roosevelt Counties. (N.M. Coop. Rpt.). OKLAHOMA - Moderate to heavy on small grains in Grady County. Counts per linear foot of wheat by county: Canadian 5-10, Roger Mills 50-150, and Mayes 5. Light and scattered in Noble County, heavy in spots in Washita County; parasitism controlling aphids in many areas. Greenbugs light in Garfield County wheat. Heavy in Cotton County, moderate in Love County, and light in Bryan County. (Okla. Coop. Sur.). ARKANSAS - Light in wheat in Washington County. (Boyer). Counts of 2 per 10 sweeps of wheat in Crittenden County. (Sterling). Mixed populations of greenbug and *Macrosiphum avenae* (English grain aphid) reported from *Faulkner, Franklin, Lonoke*, Prairie, and Arkansas Counties. Greenbug heavy enough to cause death of leaves in oats in few areas. (Barnes). MISSOURI - Light to moderate (3-25 per row foot) in small grains in southwest and south-central areas. Light in some orchard grass fields. (Munson). KANSAS - Counts per drill row of small grain by county: 0-0.6 in Cowley, 0-0.5 in Chautauqua, 0.3-1.0 in Sumner, and zero in Kingman. (Bell).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - TEXAS - Heavy on alfalfa in Brazos *County field previously controlled* for *Hypera postica* (alfalfa weevil). (Latham, Coles). NEVADA - *Counts of 10 per sweep* on alfalfa hay in Las Vegas area, Clark County. (Hoff, Zoller). OKLAHOMA - *T. maculata* heavy in Cotton County. (Okla. Coop. Sur.). ARIZONA - *Counts of* 1,000 per 100 sweeps of alfalfa in Maricopa County. (Ariz. Coop. Sur.).

CORN, SORGHUM, SUGARCANE

CHINCH BUG (*Blissus leucopterus leucopterus*) - TEXAS - Localized and heavy *on emerging sweet corn at Groesbeck*, Limestone County. (Brown). KANSAS - Annual winter survey completed March 17. Mostly noneconomic in counties surveyed; ranged 0-250 per square foot of bunch grass. Similar infestations in 1970 and 1971. Severe in 1 of 4 samples in Ottawa County; heaviest count 1,152 per square foot. Expect occasional damage in 1972 to seedling sorghum and corn, primarily in central and north-central districts. (Bell).

SMALL GRAINS

BROWN WHEAT MITE (*Petrobia latens*) - NEVADA - Increase noted on wheat at Lovelock, *Pershing County*. (Stitt). OKLAHOMA - Moderate in wheat in Cimarron County. Light in most areas in Garfield County, heavy in one field. (Okla. Coop. Sur.).

WINTER GRAIN MITE (*Penthaleus major*) - OKLAHOMA - Ranged up to 30 per linear foot of *wheat in Canadian* County. (Okla. Coop. Sur.).

AN APHID (*Rhopalosiphum padi*) - OKLAHOMA - Ranged 2,000-3,000 per foot on *rye plots in Stephens* County. (Okla. Coop. Sur.).

LYGUS BUGS (*Lygus* spp.) - ARIZONA - Counts of 38 per 100 sweeps of wheat in *Maricopa* County. (Ariz. Coop. Sur.).

FORAGE LEGUMES

ALFALFA WEEVIL (*Hypera postica*) - NEVADA - First eggs of season in Mason Valley, Lyon County. (Adams). First and second instar larvae of *Hypera* spp. 40 per sweep on alfalfa hay at Las Vegas, Clark County, with damage evident. Populations heavier than 1970 when observed in Clark County for first time in about 40 years. (Hoff, Zoller). UTAH - *H. postica* adults numerous in grass and willow duff in Snowville area of Box Elder County. (Knowlton). COLORADO - Adults feeding on alfalfa in Las Animas County. (Hantsbarger). TEXAS - Larvae up to 2 per sweep damaged alfalfa in Zavala and Maverick Counties. Heavier infestations in Wharton, Kaufman, and Brazos Counties. Larvae 3-4 per sweep on vetch in Kaufman County. (Latham et al.).

OKLAHOMA - Percent of terminals infested by *H. postica*; 50-60 in Canadian County and 10-20 in Roger Mills County. Heavy in Craig, Muskogee, Coal, Grady, Washita, and Cotton Counties. Several fields in Major County near economic levels. Adults 150 per square foot on alfalfa in Lincoln County and 5-6 per terminal in Kiowa County. Up to 75 percent of terminal buds infested in Payne County alfalfa. Larvae ranged 0-4 per bud. Moderate in Love, Marshall, and Bryan Counties. (Okla. Coop. Sur.). ARKANSAS - Early instar larvae 350 per 100 sweeps of alfalfa in Washington County. (Boyer, Dumas). Treatments underway in all areas. (Boyer). MISSOURI - Early instar larvae ranged 0-14 per plant in southern area fields. Adult mating and feeding noted on warm days. (Munson). ILLINOIS - Larvae 100 per 100 stems and tip feeding 68 percent in Johnson County field. Tip feeding 20.4 percent and larvae 27.1 per 100 stems for southern one-fourth of State. (Ill. Ins. Sur.). KENTUCKY - Eggs averaged 183 per square foot of alfalfa in Fayette County and 85 per square foot in Madison County. First instar larvae noted in Madison County. (Barnett). TENNESSEE - Surveys show populations above control levels in western area in older alfalfa. Expect control levels to be reached in new alfalfa soon. (Emerson).

CLOVER LEAF WEEVIL (*Hypera punctata*) - ILLINOIS - Larvae 10 per square foot of alfalfa in White County field and 6 in Johnson County field. (Ill. Ins. Sur.).

PEA APHID (*Acyrthosiphon pisum*) - TEXAS - Heavy on vetch in Maverick and Zavala Counties. Ranged 1,000+ per sweep at one Zavala County site. Light to medium on alfalfa in Zavala and Maverick Counties. (Latham et al.). OKLAHOMA - Ranged 150-250 per sweep in alfalfa in Roger Mills County and 20-200 per sweep in Noble County. Heavy in alfalfa in Grady County and moderate to heavy in Muskogee, Seminole, Hughes, and Craig Counties. Very heavy in Beckham County. Moderate on alfalfa in Woodward County. (Okla. Coop. Sur.). ARKANSAS - Ranged 150-200 per 100 sweeps of alfalfa in northwest areas and 450-500 in east-central areas. (Boyer, Sterling). ILLINOIS - Started to increase, 45 per 100 sweeps, on alfalfa in Johnson County. (Ill. Ins. Sur.).

COTTON

BOLL WEEVIL (*Anthonomus grandis*) - MISSISSIPPI - Spring survival surveys in Grenada County indicate 484 weevils per acre of ground trash. Negative in Yalobusha County. (Robinson).

POTATOES, TOMATOES, PEPPERS

VEGETABLE LEAFMINER (Liriomyza munda) - FLORIDA - Heavy, 7 mines per leaf on young tomato plants in Manatee County. (Poe).

DECIDUOUS FRUITS AND NUTS

LYGUS BUGS (Lygus spp.) - WASHINGTON - Numerous adults damaged pears in north-central areas. (Rushmore). Damage to pears increased at Zillah, Yakima County (Gregorich); 32 percent pear damage of pear buds based on 50 spur count at Parker. (Johnson).

WESTERN FLOWER THRIPS (Frankliniella occidentalis) - CALIFORNIA - Controls applied to nectarine trees to prevent injury in Fresno and Tulare Counties. (Cal. Coop. Rpt.).

APPLE APHID (Aphis pomi) - WASHINGTON - Nymphs appearing on apples at Zillah, Yakima County. (Gregorich).

CITRUS

Insect Situation in Florida - Mid-March - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 68 (norm 65) percent of groves; economic in 44 (norm 43) percent. Decreased and now slightly above normal but still in high range. Decrease to moderate level predicted. Highest districts south, west, and central. CITRUS RED MITE (Panonychus citri) infested 19 (norm 40) percent of groves; economic in 2 (norm 15) percent. Population lowest for March in 21 years of record and will remain very low in all districts. TEXAS CITRUS MITE (Eutetranychus banksi) infested 17 (norm 31) percent of groves; economic in 5 (norm 12) percent. Population near very low level of 1970 and will remain unimportant in most districts despite predicted increase. Highest district central. SIXSPOTTED MITE (Eotetranychus sexmaculatus) infested 5 percent of groves; economic in none. Population below normal and very low, will increase in scattered groves. PURPLE SCALE (Lepidosaphes beckii) infested 80 (norm 76) percent of groves; economic in 3 (norm 8) percent. Population near normal. Moderate in all districts. Increase expected. Highest district north. GLOVER SCALE (Lepidosaphes gloverii) infested 70 (norm 80) percent of groves; economic in 2 (norm 13) percent. At lowest March level since 1963. Population expected to increase from low to moderate range. Highest district east. CHAFF SCALE (Parlatoria pergandii) infested 45 (norm 56) percent of groves; economic in 1 (norm 7) percent. Population will remain below normal and low. Highest district south. YELLOW SCALE (Aonidiella citrina) infested 34 (norm 61) percent of groves; economic in none. Population at lowest March level since 1964 and will remain low in all districts despite expected light increase. BLACK SCALE (Saissetia oleae) statewide population averages above March normal. At present, populations vary greatly. Gradual increase expected. AN ARMORED SCALE (Unaspis citri) infested 31 percent of groves; economic in 23 percent. Population higher than in any prior month. Light increase expected. WHITEFLY adults and eggs more numerous than normal for March. Rapid increase of adults and eggs expected until mid-April. APHIDS infested 10 percent of groves; none economic. Although population near normal and currently low, rapid increase will occur. Important infestations expected through April in groves of susceptible varieties. (W.A. Simanton (Citrus Expt. Sta., Lake Alfred)).

CITRUS RED MITE (Panonychus citri) - ARIZONA - Heaviest count 42.96 per lemon leaf at one untreated grove on Yuma Mesa, Yuma County. (Ariz. Coop. Sur.).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Treatments applied to most groves at Yuma, Yuma County. (Ariz. Coop. Sur.).

SMALL FRUITS

BLUEBERRY BUD MITE (Acalitus vaccinii) - NORTH CAROLINA - Infestations generally lighter than in winter of 1970 and 1971. Damaging infestations observed in some untreated Pender and Bladen County blueberry fields. Infestations on 60 to 90 percent of terminal buds. Controls satisfactory. (Sorensen).

TWOSPOTTED SPIDER MITE (Tetranychus urticae) - FLORIDA - Widespread, ranged 5-10 per leaf on strawberry plants at Plant City, Hillsborough County and at Bradenton, Manatee County. (Poe).

A NOCTUID MOTH (Euxoa sp.) - CALIFORNIA - Larvae heavy in grape vineyards in some areas of Fresno County and required controls. (Cal. Coop. Rpt.).

CYCLAMEN MITE (Steneotarsonemus pallidus) - OREGON - Adults light, (averaged 10 per leaf) on daffodils in 20-acre planting near Logsden, Lincoln County. (Wheeler, Larson).

GREEN PEACH APHID (Myzus persicae) - FLORIDA - Ranged 5-10 per flower head on chrysanthemum in Manatee County. (Poe).

FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - ALABAMA - Heavy, localized infestations destroyed about 10 acres of pine in Marengo County. (Yates).

A CONIFER SAWFLY (Neodiprion taedae linearis) - ARKANSAS - Hatch began in south areas February 28. Weather conditions favored larval feeding and development. Third to fifth instar larvae present. Feeding damage not yet serious. Numbers sufficient to cause defoliation in local areas. Activity began about 2 weeks earlier than normal. (Warren).

PINE TUSSOCK MOTH (Dasychira plagiata) - MINNESOTA - Surveys indicate population collapse in east-central areas; this jack pine area scheduled for controls in 1972. (Minn. Pest Rpt.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - TEXAS - Medium to heavy on wild plum throughout Brazos and Madison Counties. (Williamson). ARKANSAS - Hatched in northwest areas about March 5, and about February 27 in south areas. Infestation heavier in northwestern areas. (Boyer). MISSISSIPPI - Larvae on cherry trees in southern half of State. (Guice).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - Total of 22 cases reported in U.S. March 19-25, as follows: TEXAS: Dimmit 1, Duval 2, Frio 2, Jim Hogg 1, Kenedy 2, Medina 1, Starr 5, Webb 2, Zapata 3. ARIZONA: Cochise 2, Pima 1. Total of 127 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 49, Chihuahua 5, Coahuila 8, Nuevo Leon 16, Tamaulipas 49. Total of 38 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screwworm flies released: Texas 49,988,000; Arizona 600,000; Mexico 74,314,000. (Anim. Health).

COMMON CATTLE GRUB (Hypoderma lineatum) - KENTUCKY - Averaged 4.4 per animal on backs of dairy cows of various ages in Fayette County. (Barnett). OKLAHOMA - Light on cattle in Hughes County and moderate in Craig County. (Okla. Coop. Sur.).

HORN FLY (Haematobia irritans) - MISSISSIPPI - Counts of 100 per cow in herd in Jones County. Heavy for time of year. (Harris). Occasional fly on herd in Monroe County. (Robinson). OKLAHOMA - Ranged 25-150 on animals in Payne County. Up to 300 per head on yearling steers, 500 per head on mature cows, and 1,000 per head on 2 mature bulls. Moderately heavy on cattle in Marshall County. (Okla. Coop. Sur.).

STABLE FLY (Stomoxys calcitrans) - OKLAHOMA - Increased, averaged 2 per head, on unsprayed dairy cattle in Payne County. (Okla. Coop. Sur.).

HOUSE FLY (Musca domestica) - OKLAHOMA - Counts averaged 9 per Scudder grid in untreated barns and homes in Payne County. (Okla. Coop. Sur.).

HOUSEHOLDS AND STRUCTURES

A POWDERPOST BEETLE (Lyctus bruneus) - MISSISSIPPI - Specimens recovered from mahogany door frames in Jackson County by J.F. Hall on February 3, 1972. Determined by V.H. Owens. This is a new State record. (McCarty). This is a cosmopolitan species and occurs worldwide. (PP).

BENEFICIAL INSECTS

HONEY BEE (Apis mellifera) - ARKANSAS - Overwintered satisfactory. Due to blooming of plants and favorable weather, 2-3 brood cycles observed in northwestern counties. Because of heavy population buildup, feeding may be necessary to prevent starvation prior to nectar flow. Drones appeared in some colonies and swarming may occur earlier than usual. (Warren).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

GRASS BUGS (Labops spp.) - NEW MEXICO - Damaged crested wheatgrass in reseeded areas near Llaves, Rio Arriba County. (Durkin). UTAH - L. hesperius hatched throughout Bryce Canyon, Garfield County, and up to elevations of 8,000 feet. Also active in area north and east from Alton, Kane County. (Haws, Judd).

COMSTOCK MEALYBUG (Pseudococcus comstocki) - CALIFORNIA - Old adult females and egg masses present on pomegranate trees in Porterville, Tulare County. (Cal. Coop. Rpt.).

HAWAII INSECT REPORT

General Vegetables - GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) light in young cucumber at Haleiwa and Pupukea, Oahu; eggs and nymphs moderate in 1.5 acres of bittermelon at Pupukea. SWEETPOTATO LEAFMINER (Bedellia orchilella) larval mines heavy in 2 acres of sweet potato at Hoolehua, Molokai; no parasites observed. (Fujimoto). GREEN PEACH APHID (Myzus persicae) light to moderate on about 30 percent of terminals in 6,000 square feet of sweet peppers at Pupukea, Oahu; less than 5 percent of aphids mummified. (Kawamura).

Fruits and Nuts - Larvae of a SWALLOWTAIL BUTTERFLY (Papilio xuthus) increased on citrus in Oahu period ending March 17. Eggs collected from Waimanalo, Nuuanu, and Ewa parasitized. (Kashiwai, Kumashiro).

Forest and Shade Trees - A CONIFER APHID (Cinara carolina) heavy in 20 acres of Pinus taeda at Olinda, Maui; young terminals with as many as 25 nymphs and adults per lineal inch; damage negligible. (Miyahira). Larvae of a NOCTUID MOTH (Melipotis indomita) moderate under loose bark of roadside kiawe (Prosopis pallida) trees at Waimea and Kekaha, Kauai. Small increase in adult light trap collections during first 14 days of March on Oahu. (Sugawa).

DETECTION

New State Record - A POWDERPOST BEETLE (Lyctus bruneus) - MISSISSIPPI - Jackson County. (p. 167).

CORRECTIONS

CEIR 22(12):148, 149 - A LAND SNAIL (Vertigo rugosula) - SOUTH CAROLINA - ... should read ... A LAND SNAIL (Vertigo rugosula oralis) - SOUTH CAROLINA. Delete ... Generally distributed throughout southeast U.S. (PP).

(Continued from page 157)

FOREST AND SHADE TREES

Highlights:

SPRUCE BUDWORM defoliation increased in Washington and is expected to increase again in 1972. An increase was also reported in Maine; a 3-fold increase is expected in 1972. Damage was reported from Michigan and Pennsylvania. SOUTHERN PINE BEETLE infestations were heavy in Maryland and in some areas of North Carolina. ROUNDHEADED PINE BEETLE was heavy in Lincoln National Forest and adjacent areas of New Mexico. SAWFLIES were troublesome in Michigan and several southeastern States. VARIABLE OAKLEAF CATERPILLAR defoliation was heavy in North Dakota, while in Missouri, epidemic conditions were noted in the southern areas.

SPRUCE BUDWORM (*Choristoneura fumiferana*) defoliation increased in the Okanogan and Wenatchee National Forests in WASHINGTON. Populations are expected to increase again in 1972. Populations increased this year in northern MICHIGAN. Spruce budworm had not been a serious problem, with one exception, in the past 40 years. During the early 1950's, there was an outbreak in the Keweenaw Peninsula. The largest acreage involved in 1971 was in Mackinac and Chippewa Counties, with about 40,000 acres of forests involved. There has been some host mortality in these areas. About 100,000 acres of forest were lightly infested in portions of Luce, Delta, and Marquette Counties. Controls are planned in some areas due to the value of the timber. No control had been planned on State forestland for 1972. In PENNSYLVANIA, spruce budworm defoliated hemlock in Centre County by June 23. Heaviest damage was reported on 40 square miles of hemlock in portions of Cameron, Union, and Centre Counties.

The epidemic infestation of spruce budworm which has been observed in northern MAINE for several years, continues to increase. This infestation involves several hundred square miles mostly in Piscataquis County. Tree mortality has or is expected to occur on about 31,000 acres in the Oxbow area. About 500,000 acres are approaching a high hazard condition. Egg mass surveys indicate a 3-fold increase in 1972.

WESTERN SPRUCE BUDWORM (*Choristoneura occidentalis*) defoliation in northern NEW MEXICO ranged moderate to heavy. About 50,000 acres were involved on the Carson National Forest and Taos Indian Pueblo lands. Defoliation was moderate to heavy in northern MINNESOTA, with about 2 million acres involved. Some scattered mortality was observed on balsam fir and lesser damage to white spruce. Some chemical tests were made; however, no control programs were undertaken in 1971.

JACK PINE BUDWORM (*Choristoneura pinus*) infestations in MICHIGAN were mostly confined in Crawford, Oscoda, Ogemaw, Montmorency, and Presque Isle Counties. Some populations in these counties were less than during 1970. Populations are expected to increase in 1972.

EASTERN BLACKHEADED BUDWORM (*Acleris variana*) infestations increased in size and number in western WASHINGTON. Epidemic levels were rated for about 209,880 acres of eastern hemlock, spruce, and firs in the western areas.

DOUGLAS FIR TUSSOCK MOTH (*Hemerocampa pseudotsugata*) populations were heavy in local areas of El Dorado National Forest and Yosemite National Park in CALIFORNIA. About 100,000 acres were involved in this infestation.

WESTERN PINE TIP MOTH (*Rhyacionia bushnelli*) was recovered for the first time on Monterey pine in CALIFORNIA in San Diego County during July. Also has been recovered in San Bernardino and Kern Counties.

SOUTHERN PINE BEETLE (*Dendroctonus frontalis*) infestations were heavy in MARYLAND during the fall of 1970 and the spring of 1971. Loblolly pines were killed in Dorchester, Somerset, Talbot, and Worcester Counties; total losses were estimated at 35 million board feet and valued at $1.4 million. Populations and damage declined during June and continued into the fall. Above normal rainfall may have contributed to this decline on the Eastern Shore. Infestations in NORTH CAROLINA declined in all yellow pines. During September, surveys revealed heavy infestation on 73,000 acres in the Nantahala National Forest. Salvage operations were undertaken in the heavier infested areas. In SOUTH CAROLINA, surveys indicated an increase in populations in some central Piedmont counties.

ROUNDHEADED PINE BEETLE (*Dendroctonus adjunctus*) was at epidemic levels in NEW MEXICO on the Lincoln National Forest and the adjacent Mescalero and Apache Indian Reservation. An estimated 400,000 pole-sized ponderosa pine were infested, involving about 150,000 acres.

JACK PINE SAWFLY (*Neodiprion pratti banksianae*) was economically the most serious pest on State forest in the Upper Peninsula of MICHIGAN. The most serious infested areas were in portions of Schoolcraft and Luce Counties. About 50,000 acres were involved in these areas. In Luce County, up to 90 percent mortality was reported to overmature stands of jack pine. Salvage operations were underway in dead and high risk stands. In the Lower Peninsula, jack pine sawflies were common; however, most of the defoliation was to small trees, particularly those shaded by hardwoods.

EUROPEAN PINE SAWFLY (*Neodiprion sertifer*) populations in the southern half of lower MICHIGAN were heavier than in several years. This sawfly was troublesome on several species of ornamental pines.

CONIFER SAWFLIES were troublesome in several States. In KENTUCKY, larvae of *Neodiprion* spp. infested 95 percent of the trees in a 400 acre plot, with 25-30 percent defoliation in May. In late May, 75 percent of the pines were infested in Calloway, Ballard, and Marshall Counties. Defoliation was about 75 percent. Larvae of *N. taedae linearis* were observed in early to mid-April in middle and west TENNESSEE. Defoliation was heavy in Giles, Hamilton, Meigs, Hardeman, Crockett, Polk, and Coffee Counties. Larvae were recorded from Humphreys and Houston Counties during June, for new distribution records. In FLORIDA, heavy defoliation was reported on loblolly pine by *N. excitans* in Taylor and adjacent

Counties. An endemic spring population was noted in an isolated stand of pine at Cedar Key in Levy County. Some heavy parasitism was noted.

SARATOGA SPITTLEBUG (*Aphrophora saratogensis*) was found in combination with red pine and sweetfern throughout northern MICHIGAN. Damage was reported as heavy to the pine. Reports from Thunder Bay River Forest indicate that most of the red pine planted since 1960 where sweetfern is present is being destroyed. Other areas also report heavy infestations. In the Lower Peninsula, increased activity was reported for the third year by *A. saratogensis* and *A. parallela*.

For the third consecutive year a NOTODONTID MOTH (*Symmerista canicosta*) defoliated 250-300 square miles of white oak and red oak in MICHIGAN. In this area for the second time numerous eggs of this species were found blackened and failed to hatch. Predatory beetles were observed feeding on first and second instar larvae; also a braconid was noted associated with same instar larvae. *Calosoma scrutator* and *Podisus maculiventris*, common during 1970 on fourth and fifth instar larvae, were not as abundant in 1971. There was no evidence of disease in the population, and the outlook for 1972 is unknown. The more significant mortality of *S. canicosta* occurred in areas where defoliation was heavy, probably due to starvation.

SADDLED PROMINENT (*Heterocampa guttivitta*) population collapsed in MICHIGAN, apparently due to parasitism of the egg. Expect this decline to continue during 1972. In MAINE, heavy defoliation was recorded on 26,000 acres, an increase from 1970. The third year of the outbreak in NEW HAMPSHIRE continued, mostly in margins of areas defoliated in 1970. Many larvae were destroyed by a disease, and no serious problems are expected for 1972. Saddled prominent larval damage in PENNSYLVANIA was light to moderate in 90,000 acres in Elk and McKean Counties by July 28. Heavy defoliation was reported on maple and beech in Potter County by August 23.

VARIABLE OAKLEAF CATERPILLAR (*Heterocampa manteo*) eggs hatched by August 6 in NORTH DAKOTA and leaf skeletonization was noted in Benson County. Defoliation was heavy on basswood, buroak, and elm in Benson County and on birch and buroak in Dunn County. Infestations were heavier and more widespread than during 1970. Overwintering larvae in MISSOURI pupated April through August. Moths emerged August and September. Epidemic conditions prevailed in the south-central and southeast Ozarks. Defoliation ranged 80 to 100 percent on an estimated 2 to 3 million acres and defoliation ranged 20 to 79 percent on another 5 million acres. In ARKANSAS, infestations of *H. manteo* were above normal, but lighter than in 1970. The favorite host apparently is red oak. There were two staggered generations, and larvae were noted until the middle of October.

EASTERN TENT CATERPILLAR (*Malacosoma americanum*) eggs were hatching in RHODE ISLAND by May 5. Infestations were heavier in Providence County than during 1970. Pupation was noted about June 11. The number of complaints decreased by June 14. In MARYLAND, larval damage to wild cherry trees was the heaviest within the past several years. Egg laying was heavy in most areas; therefore, heavy populations can be expected in April 1972. Eastern tent caterpillar populations were heavier in VIRGINIA than during 1970. Egg hatch was noted about March 16 in Henrico and Pittsylvania Counties. Damage to wild cherry and unsprayed orchards was very heavy statewide. Infestations were also heavy in ARKANSAS, and larvae appeared March 12 in Calhoun County.

FOREST TENT CATERPILLAR (*Malacosoma disstria*) eggs hatched in NORTH DAKOTA May 15 in Benson County. Pupation was noted by July 2. Defoliation was light but more widespread than during 1970. Parasites and predators reduced populations during 1971. Damage was reported on about 2,000 acres of woodland. A decrease is expected in 1972. In Minnesota, defoliation was heavy in 400,000 acres in the northern areas. About one million acres was reported as light to moderately defoliated. Primary host in Minnesota was aspen. Forest tent caterpillar defoliation in PENNSYLVANIA was moderate to heavy on maple, red oak, black cherry, and aspen. There was a decline in southern Somerset and Bedford Counties, largely due to a virus.

BIRCH SKELETONIZER (*Bucculatrix canadensisella*) defoliation in late summer in the lower Peninsula of MICHIGAN was not as heavy as in 1970. Populations continued heavy in the Upper Peninsula in 1971. Paper birch was defoliated throughout this area. By the first of September leaves were gone, or the crowns had turned yellow.

OAK SKELETONIZER (*Bucculatrix ainsliella*) damage to oaks in RHODE ISLAND was heavy by June 24 in Providence County. Infestations of second and third instar larvae were heavy statewide. By July 7, pupation was observed and moths were in flight from July 12 to 16.

SPRING CANKERWORM (*Paleacrita vernata*) populations were heavy and damaged shade trees, primarily elm and hackberry, throughout May and early June in middle TENNESSEE. Controls were successful where applied. In KANSAS, defoliation ranged 50 to 100 percent on many elms throughout the central and eastern areas. Female moths of *P. vernata* emerged in Cass County, NORTH DAKOTA, by March 30, which was about 7 days earlier than 1970. Moths were abundant on Siberian elm in Bottineau County by April 12. Moth and egg masses (8 egg masses per square foot) were present in Ward County by April 30. By May 7, eggs were abundant on elm in Bottineau County. Within 7 days, eggs of *P. vernata*) and FALL CANKERWORM (*Alsophilia pometaria*) had hatched in Ward, Burleigh, Bottineau, and Cass Counties. Light shotholing was evident. Shelterbelt trees in Pembina and Ward Counties were completely defoliated and larvae had completed feeding and pupated by July 2. In Cass County, female moths of *A. pometaria* emerged. The only reported infestation of *P. vernata* and *A. pometaria* was in Shakey Lakes Park in Menominee County, MICHIGAN. This area had been sprayed in the past and the population was less than in the past 2 years, with about 10 percent defoliation. Populations are expected to remain light for another 3-4 yeras.

LARGE ASPEN TORTRIX (*Choristoneura conflictana*) defoliation was heavy in 1.5 million acres in northeastern MINNESOTA; primary host was aspen. Light to moderate defoliation extended southwest and west, with 2 million acres or more involved. OAK LEAFTIER (*Croesia albicomana*) defoliation was heavy during June in PENNSYLVANIA. Controls were applied to 2,000 acres in Black Moshannon State Park, with about 100 percent mortality noted by June 24 in this area. Also defoliation was heavy in French Creek

State Park and Pine Grove Furnace State Park. By August 12, heavy defoliation was noted in a 1,000 acre tract for the second year. An area of 6,300 acres showed heavy to complete defoliation in Union County. Oaks were the major hosts.

Several species of Lepidoptera were reported from ALABAMA for new State records. These were: A NOTODONTID MOTH (*Datana contracta*) in Lee County; PYRALID MOTHS (*Tetralopha militella*) in Lee County and *T. asperatella* in Houston County; an OECOPHORID MOTH (*Psilocorsis faginella*) in Houston County; and an OLETHREUTID MOTH (*Paralobesia liriodendrana*) in Macon County.

PUSS CATERPILLAR (*Megalopyge opercularis*) was reported for the first time from TENNESSEE; recovered from Knox County on redbud.

BOXELDER LEAFROLLER (*Gracillaria negundella*) outbreaks occurred in UTAH in the mouths of many Cache, Box Elder, Weber, Salt Lake, and Utah County canyons. Several thousand trees were defoliated. Injury also occurred in a number of communities in these counties. Controls were needed in these areas.

The first generation of MIMOSA WEBWORM (*Homadaula anisocentra*) was very light. Damage was heavy but scattered to mimosa in eastern OKLAHOMA in July, August, and September. Five new counties were found infested in the southeast, south-central, and central areas in limited surveys in the fall.

ELM LEAF BEETLE (*Pyrrhalta luteola*) was extremely abundant in COLORADO and caused some defoliation to elm trees. By the first week in June, larval infestations and damage were apparent. In scattered areas of Weld and Mesa Counties, defoliation approached 100 percent on untreated trees. Severe defoliation of elms was reported from most metropolitan areas of the State. Elm leaf beetle caused leaf damage on 100 percent of the American and Siberian elms at Sioux City, IOWA, during September. It is estimated that 50 percent of the effective leaf surface was destroyed. Heavy defoliation also occurred in the southwest areas. Elm leaf beetle infestations were not as extensive in MISSISSIPPI as they were in 1970. However, some severe infestations caused up to 100 percent defoliation of Chinese elms in Leflore, Lowndes, Hinds, Oktibbeha, Tunica, and Washington Counties.

SMALLER EUROPEAN ELM BARK BEETLE (*Scolytus multistriatus*) infestations in TENNESSEE were light on elm trees in Franklin, Coffee, and Greene Counties. These were reported as new county records.

NATIVE ELM BARK BEETLE (*Hylurgopinus rufipes*) adults in NORTH DAKOTA appeared in window traps May 7, which was about the same date as in 1970. Trap logs in Cass and Richland Counties had up to 24 galleries per foot of log. Adults were collected May 14 in Burleigh and Emmons Counties for new county records.

In PENNSYLVANIA, 16 adults of an EURYTOMID WASP (*Eudecatoma marylandica*) emerged August 17 from gouty oak galls in January near Auburn, Schuylkill County, for a new State record.

BIRCH LEAFMINER (*Fenusa pusilla*) populations were the heaviest in Delta, Dickinson, Menominee, and Iron Counties, MICHIGAN. By mid-July, large numbers of birch in these counties were brown. Trees along roadsides, field borders, or in yards were the most susceptible to attack. The birch leafminer was the most important aesthetic insect problem in the Upper Peninsula. Larvae were beginning to mine leaves in RHODE ISLAND by June 1 in Providence County and by June 10 there was extensive evidence of mines in leaves on unsprayed gray birch in Washington County. From June 14 to 18 there was very noticeable damage to unsprayed birches throughout the State. The second generation was reported on July 15 in Providence County. Birch leafminer was generally found throughout VERMONT. Leaf browning was heavy on grey birch in the Champlain Valley.

LOCUST LEAFMINER (Xenochalepus dorsalis) outbreak occurred in July in TENNESSEE as in past years. The degree of infestation, or amount of damage, was not nearly as great as in 1970; however, feeding was observed in west Tennessee in 1971, but not in 1970.

Adults of a PLATYGASTERID WASP (Platygaster obscuripennis) emerged from 2 willow terminal twig galls at La Porte, Sullivan County, on February 15. This was reported as a new record for PENNSYLVANIA. Larvae of a SAWFLY (Nematus abbottii) were collected feeding on black locust leaves at Auburn, Lee County, ALABAMA. This was reported as a new State record.

MAN AND ANIMALS

Highlights: This was the fourth best year since 1962 for SCREWWORM in the U.S. HORN FLY populations were about normal except for Texas, North Dakota, Ohio, Maryland, Mississippi, and Florida. FACE FLY caused some control problems in Maryland and some productivity loss in Illinois. Increased in Kentucky. STABLE FLY was annoying in several States. A BLACK FLY continues to affect turkey production in South Carolina.

There were 473 laboratory-confirmed cases of SCREWWORM (Cochliomyia hominivorax) reported in the U.S. during 1971. This was the fourth best year since 1962, the start of the program, when 50,000 cases were reported. This was an expected increase following the lowest 2 years ever. In 1969, a total of 219 cases was reported and in 1970 there were 153 cases.

In 1971, 255 of the screwworm cases submitted for identification were in September and October, whereas, in 1969 and 1970, May, June, and July were the most active months. There were no cases reported during January and only one case during February. There were no cases reported in NEW MEXICO for the second time on record; none for the first time in CALIFORNIA since 1965. For the seventh consecutive year OKLAHOMA reported no cases and LOUISIANA has continued screwworm-free since 1962. In ARKANSAS, 25 cases were reported and ARIZONA had 4 cases.

In northern Mexico, there were 8,811 laboratory-confirmed cases of screwworm as compared to 4,634 cases in 1970.

There were 2,584 non-screwworm samples submitted in the U.S. this year, and 1,945 in 1970.

Screwworm eradication operations were started in Puerto Rico, and the U.S. and British Virgin Islands on June 1, 1971.

HORN FLY (Haematobia irritans) populations in IDAHO were about normal and ranged 100-300 per animal. This area includes Latah County north to Boundary County. Chemical dust bags were satisfactory where available to cattle. In UTAH, populations were more troublesome in areas where controls were neglected. Infestations were troublesome in Washington and San Juan Counties. Horn fly infestations in TEXAS were first reported in March from Bell County. Populations increased during late April and early May in the Trans-Pecos and Rolling Plains areas. The heaviest infestations were reported from the Trans-Pecos area and south-central Texas. Horn fly populations were found in OKLAHOMA from late March to mid-November on cattle. There was a peak about mid-June, then a second peak in mid-August. With a gradual decrease through October.

Horn flies ranged 0-10 per animal in NEBRASKA on May 11 on herds pastured in Cherry and Lincoln Counties. Increase noted by June 1, then the range was 20-30 per animal in Red Willow, Furnas, Frontier, and Lincoln Counties. Populations peaked at 500+ per animal in late July. In NORTH DAKOTA, economic counts of 300 per animal noted on cattle in McKenzie County by June 11. Infestations were found throughout the season. Horn flies averaged 141 per animal in ILLINOIS during June, July, and August. This represents an estimated loss in productivity of 2.8 percent. Averaged less than 10 per animal in INDIANA in the central district. Generally, was not an important pest in 1971.

Horn flies peaked in mid-July in OHIO. During July, up to 500+ were noted on the backs of cattle. Populations in MARYLAND were well below normal in Baltimore, Frederick, Carroll, Montgomery, and Prince Georges Counties. Heaviest counts were during July and August and ranged 10-50 per head. Counts in Wicomico and Dorchester Counties ranged 60-300 per head on unsprayed cattle. Sprayed cattle ranged 7-20 per head during the same period statewide. Most dairy herdsmen applied some form of control to prevent annoyance. Horn flies appeared on May 7 in MISSISSIPPI in Oktibbeha County. Populations peaked in early July; adults ranged 300-400 per animal in Holmes, Oktibbeha, Monroe, and Montgomery Counties. A second peak was noted late August and early September with similar counts. By mid-October, a decline was noted and adults ranged 50-100 per animal. Some controls were applied.

Populations were lighter in FLORIDA in 1971 than in 1970 at Gainesville, Alachua County; Quincy, Gadsden County; and Ona, Hardee County. Peak infestations on beef cattle at Gainesville occurred in September, with a herd average of 1,080 flies per animal. Dairy cattle had much lower counts. Extreme variations in fly numbers were noted in 1971, depending on the week and the area counted. The fly season started earlier in the spring of 1971 than in 1970, with economic levels on beef and dairy cattle developing by May and continuing through November. Horn flies are found at Gainesville and Ona throughout the year, while Quincy had very few flies from October until March. The maximum number of flies per animal was recorded from a bull, from which 7,000 flies were removed and hand counted. Horn fly remained a problem at Belle Glade and continued at summer levels into the fall.

FACE FLY (Musca autumnalis) was first reported in IDAHO in Clearwater County on April 5. During July, counts ranged 3-35 per face on cattle from Latah County to the Canadian border.

Became a nuisance around homes about August 31. Populations not as troublesome to livestock as in 1969. In MONTANA, populations during July and August increased in the southwestern mountain valleys; counts of 25 adults per face were noted. Populations were lighter in the eastern areas. Adult counts of 18 per face on calves noted July 23 in Ransom County, NORTH DAKOTA. Economic infestations were observed in Dunn County, with counts of 20 per face in late August. Face flies ranged 2-3 per animal in NEBRASKA on June 21. Increased and peaked at 20-25 per animal on August 5, then declined. Counts of 5 per head reported by September 17.

Face flies on untreated cattle in ILLINOIS peaked at 34 per animal on July 15 in Ogle County. Heaviest counts were in Adams County; averaged 38 per animal and peaked at 45 on August 25. Average for Illinois for June, July, and August was 27 per animal and an estimated productivity loss of 4.1 percent. In INDIANA, adult males noted near barns in Tippecanoe County by April 23. At this time, averaged 5 per head of cattle in south-central areas. Face flies appeared in NEW HAMPSHIRE about the first of April in Strafford County. No serious problems were reported this year. In VERMONT, populations were moderate on cattle in pasture May 18 and increased until July 7, at this time counts of 200 per head noted in Chittenden County.

Face fly was the most difficult fly to control on cattle in MARYLAND. Populations were at annoyance levels by April 23 in Baltimore, Carroll, Frederick, and Harford Counties. Counts ranged 10-30 per head in these counties. Peaks ranged 30-100 per head during July and August in central Maryland. Populations were light on the Eastern Shore in counties east of Cecil County. Annoyance levels declined in October. In the higher elevations in VIRGINIA, adults ranged moderate to heavy. On a single farm in Carroll County, adults ranged up to 200 per head.

In KENTUCKY, face fly was more troublesome on cattle; however, it was also a pest of horses. Populations increased over the previous 3 years. Adults ranged 10-14 per head for the 62 counties surveyed. The incidence of "pink eye" was more numerous than the previous 2 years and appears to be increasing. In SOUTH CAROLINA, where counts of 50-100 per head were reported in 1970; counts ranged 0-5 per head in 1971. Infestations in MISSISSIPPI were comparable to those in 1970; but were less than the levels of 1969. Adults were first reported on cattle in Monroe County early in June.

COMMON CATTLE GRUB (Hypoderma lineatum) infestations were moderate in KENTUCKY, which was similar to the infestations of 1970. Larval emergence peaked in mid-February and a second peak was noted March 5. In FLORIDA, counts were less than in 1970 in Alachua County. Grubs in the backs of cattle were earlier instars and occurred later in the season than in 1970. This was due to the late fall and warmer temperatures. Late second and early third instar grubs were recovered in mid-December. Grubs averaged 5 per animal with herd infestation rate of 23 percent.

Hypoderma spp. infestations on cattle at 9 NORTH DAKOTA livestock markets during March ranged up to 60 grubs per head. This was an increase from 4 grubs per animal found during 1970. The number of animals infested decreased from 30 percent in 1970 to 10 percent in 1971. Those animals originating from south and west of the Missouri River showed heavier infestations.

STABLE FLY (*Stomoxys calcitrans*) counts in IOWA on an untreated herd averaged 27 per leg on June 30 and 13 per leg on August 13. Adults appeared on May 26, which was 20 days later than usual. Populations peaked in ILLINOIS at 22 per animal June 23, and the season's average was 11 per animal in Ogle County. Averaged 3 per animal in Adams County with no noticeable peak. Averaged 4.5 per animal in St. Clair County, with a peak of 10 per animal June 23. The State average was 6.5 during June, July, and August. This represents an estimated loss of productivity of 3.2 percent.

Stable fly populations in NORTH DAKOTA reached annoying levels on July 2 in Cass County, with counts of 15-20 adults per animal. Annoyance continued into October. This pest caused problems in hog houses. In NEBRASKA, ranged 4-5 flies per leg on feedlot animals in late June. Increased to a peak in mid-August, when counts ranged 25-30 per leg. Declined to 5 per leg by September 17. Stable fly activity was reported in OKLAHOMA from mid-March through September. Counts of 5 per head were reported on untreated cattle in Payne County in mid-May and also in early September. In UTAH, annoyance was about normal around farms.

First mosquito larvae in MINNESOTA were observed in the Minneapolis and St. Paul metropolitan area on March 31, but first pupation did not occur until April 26. By May 1, *Aedes* pupae were common but cool weather delayed adult emergence. The first heavy hatch of *Aedes vexans* eggs was the third week of May. This brood emerged about June 7 and light trap catches increased by June 11, as did nuisance levels. *A. vexans* accounted for over 90 percent of the trap collections. Heavy rains the fourth week in June brought on another general hatch of *A. vexans* eggs. *Coquillettidia perturbans* in significant numbers were present in trap collections by June 20 and peaked about July 10. *Culex tarsalis* were common during July but never in large numbers. Special surveys were made for *Aedes triseriatus*, and many tree-hole breeding sites were treated.

A WHITESTOCKINGED BLACK FLY (*Simulium venustum*) adults emerged in NORTH DAKOTA, in Cass County on May 3. Adults ranged up to 12 per animal on cattle and horses. By the end of May, populations increased to 1,000 per animal on cattle and 500 per animal on horses. Infestations persisted throughout July, but were not as severe as in 1970.

S. congareenarum and *S. slossonae* in SOUTH CAROLINA transmitted the parasites that caused a leucocytozoon disease in turkeys. This disease has reduced turkey production in the past 2 years. Egg production has been severely reduced in Chesterfield County. *S. congareenarum* occurred during April, May, and early June, while *S. slossonae* apparently was present throughout the year.

In SOUTH CAROLINA, 22 species of BITING MIDGES (*Culicoides* spp.) were collected in Georgetown County during August, September, and October. The dominant species in this area was *Culicoides furens*. Other species collected were: *Culicoides hollensis*, *C. spinosus*, and *C. stellifer*. During October, collections in light traps diminished.

HOUSE FLY (*Musca domestica*) infestations were serious in environmental controlled poultry houses in northwest ARKANSAS. House fly continues as the major problem in swine and poultry operations in SOUTH CAROLINA.

EAR TICK (*Otobius megnini*) apparently is established in ARKANSAS. This infestation has been present for the past 6 years in Searcy County and has spread over most of the central part of the county.

AN ITCH MITE (*Notoedres douglasi*) was collected for the first time in OREGON from skin lesions of silvery gray squirrels at Hood River, Hood River County.

BROWN RECLUSE SPIDER (*Loxosceles reclusa*) specimens were collected in Polk County, TENNESSEE during the week ending May 21 and collected from Hardin County during the week ending July 2 for new county records.

HOUSEHOLDS AND STRUCTURES

EASTERN SUBTERRANEAN TERMITE (*Reticulitermes flavipes*) remained the major structural pest throughout ALABAMA and MARYLAND.

Distribution of OLDHOUSE BORER (*Hylotrupes bajulus*) was extended within several States. In ALABAMA, larvae were collected in Houston County. Specimens were recovered in TENNESSEE, in counties of Hardin and Sevier, while in PENNSYLVANIA, the distribution included Fayette, Adams, Delaware, and Westmoreland Counties.

BENEFICIAL INSECTS

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CONVERGENT LADY BEETLE (*Hippodamia convergens*) adults were in alfalfa in southwest OKLAHOMA by mid-January and larvae appeared by mid-March. Counts were heavy in aphid infested wheat and alfalfa by early May, but were not controlling the heavy populations of *Therioaphis maculata* (spotted alfalfa aphid). In other areas of the State, larvae and adults of *H. convergens* were common by mid-April. This lady beetle helped control *Schizaphis graminum* (greenbug) on sorghum during August in the panhandle area. Primarily convergent lady beetle adults and larvae in WISCONSIN were an important factor in the collapse of *Cinara strobi* (white pine aphid) in Dane County during July. *H. convergens* suppressed populations of *Rhopalosiphum maidis* (corn leaf aphid) in August and stablized infestations of *Acyrthosiphon pisum* (pea aphid) during May.

Convergent lady beetle and *Coleomegilla maculata fuscilabris* were the more important species in ALABAMA crops for controlling aphids.

The lady beetle species most often observed in MAINE were *Hippodamia tredecimpunctata*, *Coleomegilla maculata*, *Coccinella transversoguttata*, *C. trifasciata*, and *Adalia bipunctata*. In cornfields where lady beetles were found last year they were heavier this year, and *Rhopalosiphum maidis* (corn leaf aphid) was less a problem.

In MASSACHUSETTS, lady beetle larvae were noted in an unsprayed orchard in Hampshire County on May 24. Observed in alfalfa from early July to the last of September in Berkshire and Hampshire Counties; the heaviest count was 50 adults and 17 larvae per 100 sweeps. The most common species in INDIANA in alfalfa and corn was *Coleomegilla maculata*. In ARKANSAS, the two most abundant species were *C. maculata* and *H. convergens*. Adults were first observed about mid-March the southeast areas. Chilocorus stigma was common in fields of soybeans infested with whiteflies. Stethorus sp. was abundant in the Arkansas Valley of COLORADO feeding on Oligonychus pratensis (Banks grass mite) in mid-August.

About 700 adults of a WEEVIL (Phrydiuchus tau) were released in OREGON during October, November, and December to feed on Mediterranean sage in rangeland areas in Lake County. Releases were also made of adults of Longitarsus jacobaeae (a flea beetle) in Lane and Tillamook Counties for control of tansy ragwort.

Development and emergence of a GOAT WEED BEETLE (Chrysolina quadrigemina) was retarded by abnormal heavy rains May and June in IDAHO in Kootenai County. On June 10, adult feeding was general in the Riverside area of Clearwater County. From the hillsides, collected 3,000 adults and released them in Elmore County for the control of goatweed.

A PUNCTUREVINE SEED WEEVIL (Microlarinus lareynii) appears to be established throughout OKLAHOMA. Specimens were recovered in Grady and Payne Counties in 1971. The original releases were made in 1965 in Oklahoma.

HYMENOPTERUS PARASITES became established in several areas and were factors in reducing or holding some pests in check. An ENCYRTID WASP (Holcencyrtus physokermis) a parasite of Physokermes picae (spruce bud scale) in OREGON was reared from host material from Multnomah County for a new distribution record. A BRACONID (Trioxys pallidus) was introduced into some Oregon English walnut orchards to control Chromaphis juglandicola (walnut aphid). An ICHNEUMONID (Bathyplectes curculionis) was abundant throughout the alfalfa areas of Oregon.

A BRACONID (Lysiphlebus testaceipes) was abundant in the Arkansas Valley of COLORADO, where it was parasitizing Schizaphis graminum (greenbug) in sorghum fields. In OKLAHOMA, L. testaceipes was common in greenbug infested wheat by early March and was an important factor in control of this pest. Opius cereus a parasite of Anastrepha suspensa (Caribbean fruit fly) had been introduced at several sites in Dade County, FLORIDA. During 1971, O. cereus was recovered at the release site areas in 30-40 percent of the A. suspensa larvae taken from subtropical fruits and examined.

In PENNSYLVANIA, the only parasites with a statewide distribution are Bathyplectes curculionis (an ichneumonid) and Tetrastichus incertus (an eulophid wasp). T. incertus showed a general decline statewide. Microctonus colesi (a braconid) was recovered from western Pennsylvania. B. anurus (an ichneumonid) was recovered from alfalfa weevil (Hypera postica) in the southwestern portion of the State for the first time. In MICHIGAN, surveys indicate B. curculionis present throughout the Lower Peninsula. M. aethiops was established at East Lansing and in Tuscola County. Expect parasitism of alfalfa weevil to increase. B. curculionis parasitism was up to 62 percent of the alfalfa weevil larvae in southern WISCONSIN during May and June. Probably the major factor in holding alfalfa weevil populations in check.

Several hundred specimens of a PHYCITID MOTH (*Vogtia malloi*) were introduced and released in FLORIDA during the summer to control alligatorweed, (*Alternanthera philoxeroides*). Releases were made at Orlando, Orange County, Ft. Pierce, St. Lucie County, Ortega River area of Jacksonville, Duval County, and three localities in Alachua County. All these releases have not been evaluated, but this species has become established at Orlando and Gainesville. Alligatorweed at Lake Alice in Gainesville during June averaged 52.5 aerial stems per square foot, but after *V. malloi* was released stems were reduced to 4 per square foot by the last of October. A CINNABAR MOTH (*Tyria jacobaeae*) is established in the areas of original release in OREGON (Linn County-1960, Coos County-1964) and was prevalent in about 100 square miles in eastern Linn County and most of southwestern Coos County.

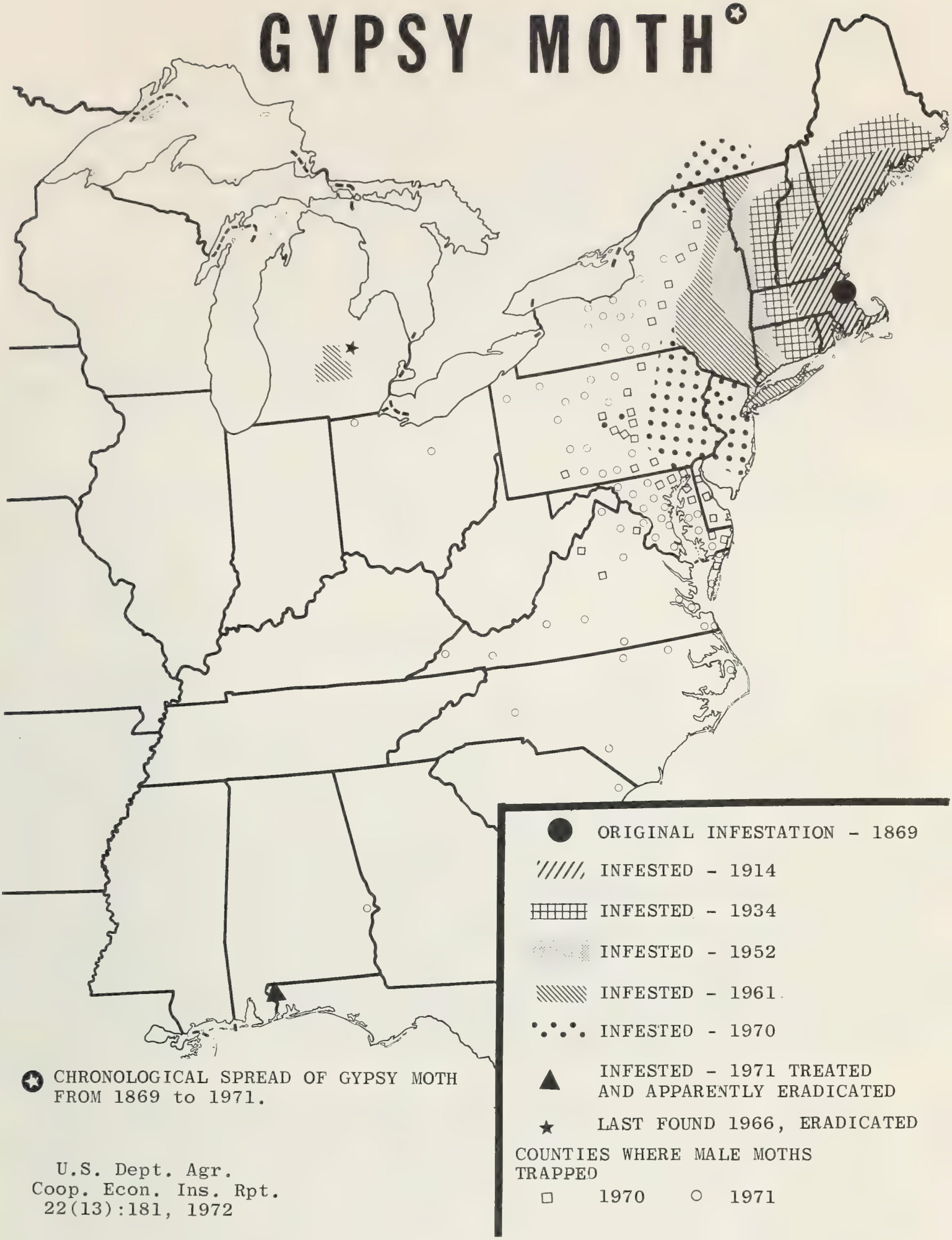
A BIGEYED BUG (*Geocoris punctipes*) and FLOWER BUGS (*Orius* spp.) were the more important species in ALABAMA feeding on the eggs and larvae of *Heliothis* spp. in various crops statewide.

An adult of a BROWN LACEWING (*Kimminsia schwarzi*) was collected from sweepings of Austrian pine in PENNSYLVANIA in Indiana County on September 3. This was reported as a new State record for this species.

The percentage of American foulbrood disease in the 60,000 colonies of the HONEY BEE (*Apis mellifera*) was 4-5 percent in SOUTH CAROLINA. This percentage was primarily due to abandoned or unkept colonies. In commercial operations the percentage of American foulbrood disease was under 2 percent. In middle TENNESSEE, colonies entered the winter in good condition; however, colonies in the eastern areas had very light stores. Expect these colonies would need to be fed in February to prevent starvation. The total honey crop was estimated at 50 percent of normal.

ALKALI BEE (*Nomia melanderi*) populations were heavy in WASHINGTON and nesting was good during July in Walla Walla County. Populations have shown a good recovery from the damaging rains in 1965 and 1966.

GYPSY MOTH✪


● ORIGINAL INFESTATION - 1869
▨ INFESTED - 1914
▦ INFESTED - 1934
░ INFESTED - 1952
▧ INFESTED - 1961
∴ INFESTED - 1970
▲ INFESTED - 1971 TREATED AND APPARENTLY ERADICATED
★ LAST FOUND 1966, ERADICATED
COUNTIES WHERE MALE MOTHS TRAPPED
□ 1970 ○ 1971

✪ CHRONOLOGICAL SPREAD OF GYPSY MOTH FROM 1869 to 1971.

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Important recent name changes among earwigs of the genus Doru (Dermaptera, Forficulidae)

Ashley B. Gurney 1/

Earwigs of the genus Doru are the most common Forficulidae in South and Central America, rivaling in abundance species of Euborellia in the Carcinophoridae. Likewise, Doru is encountered regularly during Plant Quarantine inspections of plant products and baggage from Mexico and elsewhere in the American tropics. Previously, most South and Central American specimens of Doru were identified as D. lineare (Eschscholtz). At least 2 species of Doru were recorded frequently from the southern States of the U.S., but there had been uncertainty about their names and relationships. Recently, the species of Doru were studied by Dr. Alan Brindle, University of Manchester, Manchester, England (Brindle, 1971), and he found that the name Doru lineare has been misapplied. Brindle also found that 3 Doru species comprise the fauna of the U.S.

Doru taeniatum (Dohrn) (fig. 1) exemplifies the general appearance of male specimens of Doru, but some species have vestigial tegmina (modified front wing) and forceps of a different shape. Females have simple forceps and lack a pygidial spine. In both sexes the second segment of all tarsi is strongly bilobed; antennae usually have 11 to 13 segments.

Following the revision, the name D. lineare now applies to a species occuring in Brazil, Paraguay, and Argentina. The species found commonly from Bolivia through Colombia, Central America and Mexico, which has been taken most frequently in quarantine inspections at southern U.S. borders, is D. taeniatum. Specimens of taeniatum usually are larger than those of lineare, the body length (exclusive of forceps) of taeniatum being 12-14 mm or more, while that of lineare is seldom more than 11 mm. The abdomen of taeniatum is dark, often blackish, but that of lineare is darkish orange or lighter. The pronotum of lineare is proportionally smaller than that of taeniatum and the lateral pronotal margins of taeniatum are straighter (figs. 4, 1). The last abdominal male tergum of lineare has paired dorsal tubercles (fig. 5, tu) which typically are more ridgelike and elongate than those of taeniatum. When mature, both lineare and taeniatum are long-winged, i.e., when tegmina and wings are folded in the usual position the "wing-scale" (fig. 1, ws) extends posteriorly to the tegmen, unlike several species in which no wing is visible (fig. 7).

In the United States, breeding populations of Doru taeniatum occur in the southern tier of States from California to Florida, and they have been found as far north as Maryland in the East. However, some of those colonies may have resulted from introductions but later failed to become permanent. Likewise, some specimens found under artificial conditions were adventives that never were associated with established outdoor colonies. A few years ago all stages of taeniatum were found concealed behind the leaves and husks of late field corn in Georgia during September. It is not clear whether taeniatum was originally native in the United States or whether modern transportation has enabled it to migrate north and then to gradually enlarge the occupied area. Rehn & Hebard (1914) gave a summary of U.S. occurrence.

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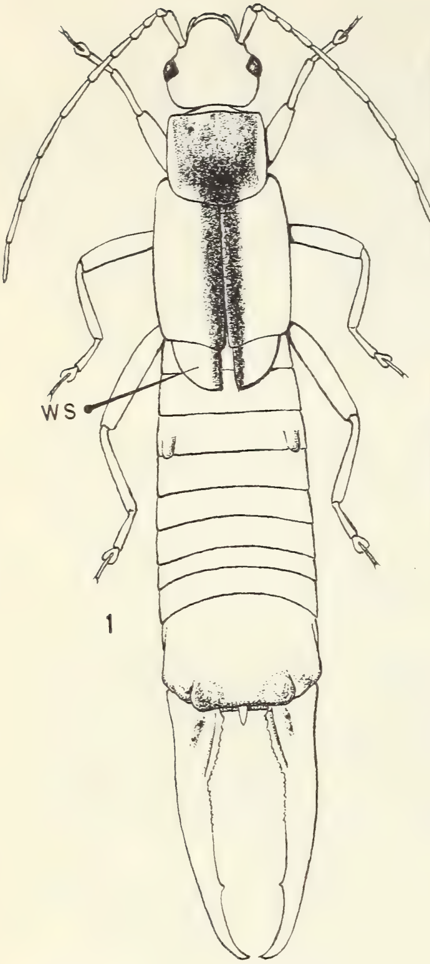
Two other species, *Doru* aculeatum (Scudder) and *D. davisi* Rehn & Hebard, occur naturally as native species in the East. Each of them averages somewhat smaller than *taeniatum* and they also apparently differ from it in having no visible hind wings, that is, no wing-scales posterior to the tegmina. In the past, before *taeniatum* was recognized as occurring in the U.S., some individuals regarded as *aculeatum* or *davisi* were found to have visible wings. This matter deserves additional investigation because, particularly with *davisi*, large series of specimens have not been studied to determine the limits of variation. *D. aculeatum* is widespread, occurring from Florida to Louisiana, north to southern Ontario, Michigan, and Nebraska. It usually is found in tidal marshes or freshwater areas of tall reeds, marsh grasses, cat-tails, skunk cabbage and other plants that afford the earwigs living places. Specimens live concealed in the leaf-sheaths of stems and are active at night. On Long Island, N. Y., Cooper (1933) found numerous examples of *aculeatum* that had burrowed beneath logs and stones to hibernate in late fall. Cantrall (1943) gave a full account of *aculeatum* in Michigan. *Doru davisi* is known only from Florida, and most of the specimens I have seen were found near Lake Okeechobee. It differs from *aculeatum* by lacking a tooth near the apex of the male forceps (fig. 9), by the base of male forceps being more flared laterally and dorsally, by having a longer pygidial spine, and by the pronotum usually being slightly longer than wide. The apical tooth of *aculeatum* male forceps usually is distinct (fig. 6), but sometimes is weakly developed.

The genus *Doru* is represented in the West Indies by *taeniatum* at least in Cuba, Jamaica, Dominican Republic and Puerto Rico, but a more widespread species is *D. albipes* (F.), known from both the Greater and Lesser Antilles and apparently encountered more often than *taeniatum*. The tegmina of *albipes* usually bear a yellow spot, which, with the yellow wing-scales, give a 4-spotted appearance (fig. 10). The posterior male tergum bears a transverse row of 4 small tubercles, and both the variable male forceps (fig. 12, 13) and the female forceps (fig. 11) are distinctive.

Several South American species besides *taeniatum* and *lineare* are recognized in Dr. Brindle's revision, and about 13 New World species are known, most of them other than those noted here represented thus far by a small number of specimens. To aid in distinguishing some of the species, Brindle has utilized characters of male genitalia which are concealed by the posterior sternum.



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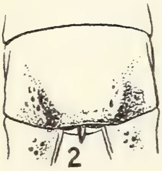

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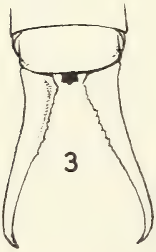

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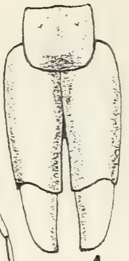

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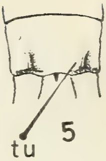

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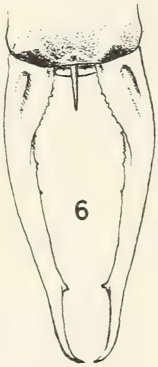

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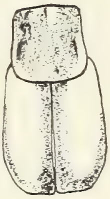

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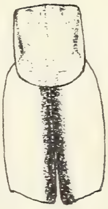

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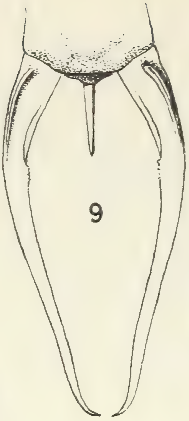

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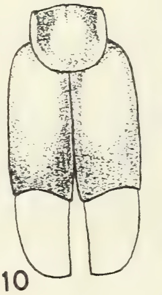

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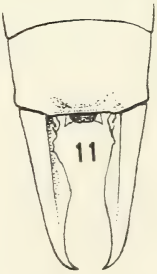

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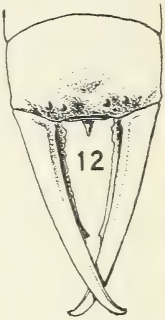

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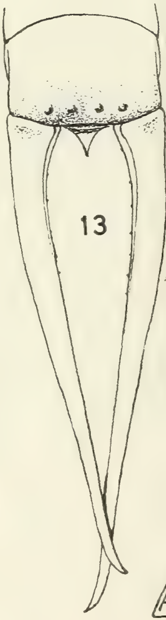

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Explanation of Figures

Figs. 1-3. *Doru taeniatum* (Dohrn). 1. General view of male (Dark color of abdomen not shown). ws-wing scale; 2. Male, details of posterior abdominal tergum and bases of forceps, dorsal; 3. Female, end of abdomen and forceps.

Figs. 4, 5. *Doru lineare* (Eschscholtz). 4. Pronotum, tegmina, and wings; 5. Male, details of posterior abdominal tergum and bases of forceps, dorsal. tu- dorsal tubercles.

Figs. 6, 7. *Doru aculeatum* (Scudder). 6. Male, end of abdomen and forceps, dorsal; 7. Pronotum and tegmina.

Figs. 8, 9. *Doru davisi* Rehn & Hebard. 8. Pronotum and tegmina; 9. Male, end of abdomen and forceps, dorsal.

Figs. 10-13. *Doru albipes* (Fabricius). 10. Pronotum, tegmina, and wings; 11. Female, end of abdomen and forceps, dorsal; 12. Male, end of abdomen with short forceps; 13. Male, end of abdomen with forceps of maximum length.

(Illustrations by Arthur D. Cushman)

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LIGHT TRAP COLLECTIONS

	Temperature °F.	Precipitation (inches)	Type of trap BL = blacklight I = incandescent MV = mercury vapor O = other	Agrotis ipsilon (black cutworm)	Estigmene acrea (saltmarsh caterpillar)	Euxoa auxiliaris (army cutworm)	Faronta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	H. zea (bollworm, corn earworm, tomato fruitworm)	Laspeyresia pomonella (codling moth)	Loxostege commixtalis (alfalfa webworm)	Loxostege rantalis (garden webworm)	Loxostege sticticalis (beet webworm)	Manduca quinquemaculata (tomato hornworm)	Manduca sexta (tobacco hornworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Spodoptera frugiperda (fall armyworm)	Spodoptera ornithogalli (yellowstriped armyworm)	Trichoplusia ni (cabbage looper)	Crops
FLORIDA																								
Gainesville 3/10-16			BL		1			7											3			4	1	
Gainesville 3/17-23			BL		1			5											2			4		
MISSISSIPPI																								
Stoneville 3/10-16	40-77	0.79	2BL	10				2										89	200			2		
Stoneville 3/17-23	46-78	0.22	2BL	14														63	185					
TEXAS																								
Waco 3/10-16			BL	13				84										64	153	1		8		
Waco 3/17-23			BL	5				84										50	72			9		

Weather of the week continued from page 162.

snow belt merged with a rain pattern that extended from the middle Mississippi River Valley to the middle Atlantic coast. Thunderstorms dampened middle Mississippi, Ohio, and the Tennessee River Valleys. Another storm in the Southeast dumped locally heavy snow in mountains of western North Carolina Saturday afternoon, before moving out over the Atlantic Ocean. Most of the area from southern California to New Mexico has received no rain or only light sprinkles since late December.

TEMPERATURE: Southerly winds helped bring a warming trend to the northern and central Atlantic Coastal States early in the week. Maximums reached the 50's over Pennsylvania and western New York Wednesday afternoon. Warming also occurred in the central Rocky Mountains on the back side of a high that centered over the Great Plains. Maximums in the Rockies were generally in the 60's and 70's by Wednesday. Few small areas failed to warm to 32 degrees Wednesday afternoon: Red River of North Valley, Upper Michigan, and nearby portions of Minnesota and Wisconsin and northern New England. Northerly winds kept afternoon temperatures in the 30's and 40's from the Great Lakes to the Ohio River. Maximums reached the 90's at spots in the southwestern deserts, 80's over parts of Oklahoma, most of Texas, and parts of Florida. Northerly winds late Thursday and Friday cooled much of the East. Temperature at Charlotte, North Carolina, plunged to 26 degrees, Columbia, South Carolina, registered 28 degrees Friday morning. Weekend warming trend pushed temperatures into the 80's as far north as western Kansas Sunday afternoon, when Russell and Dodge City registered 86 degrees. Cooling occurred in the Far West and the Deep South. Austin, Nevada, recorded 15 degrees Sunday morning, and freezing temperatures covered northern Georgia and the Carolinas except along the coast. Temperatures averaged below normal over the Pacific Northwest, over most of the area east of the Mississippi River. Eastern Montana averaged 9 to 14 degrees warmer than normal.

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